Chapter 3 – Whole Chapter Extra Video 2

No Calc

1. Let f be a differentiable function. If $g(x) = (1 + f(2x))^4$. Find $g'(x)$

2. If $f(1) = 3$, $f(5) = 2$, $f'(1) = -2$, $f'(5) = -9$, $g(1) = 5$, $g(5) = 4$, $g'(1) = -3$, and $g'(5) = 8$, FIND:
a) $(f + g)'(5)$

b) If $h(x) = f(g(x))$, then find $h'(1)$

Calc OK
1. a) Find the local linear approximation of $f(x) = e^{2x}$ at the point where $x = 0$.

b) Use your approximation to estimate $f(0.1)$.

2. Consider the equation $x^3 + xy - 3y^2 = 12$
   Write an expression for the slope of the curve at any point (x, y).